DOCKET NO. 075635.0108 (2001P57007US) **PATENT**
FILE NO. UGSC01-05085
CLIENT NO: 45113

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:		Feng Yu, et al.
Serial No.	:	10/039,187
Filed	:	December 31, 2001
For	:	APPARATUS, METHOD, AND SYSTEM FOR DRAFTING MULTI-DIMENSIONAL DRAWINGS
Group No.	:	2628
Examiner	:	Roberta D. Prendergast
Conf. No.	:	7183

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF

Sir:

This brief is submitted in reply to the Examiner's Answer mailed February 17, 2010, and is responsive to the issues and arguments raised therein.

TABLE OF CONTENTS

Real Party in Interest

The real party in interest, and assignee of this case, is Siemens Product Lifecycle Management Software Inc.

Related Appeals or Interferences

To the best knowledge and belief of the undersigned attorney, there are none.

Status of Claims

Claims 24-46 are under final rejection, and are each appealed. Claims 1-23 were previously cancelled.

Status of Amendments after Final

No claims were amended after the July 28, 2009 final rejection.

Summary of Claimed Subject Matter

The following summary refers to disclosed embodiments and their advantages, but does not delimit any of the claimed inventions.

A Summary of Claimed Subject Matter and Support for Independent Claims was included in the Appeal Brief, and is incorporated by reference.

The Examiner's Answer is certainly correct that other portions of the specification as filed describe modifying surface conditions into an NxM surface, including page 18, line 22 – page 20, line 25, and others.

Grounds of Rejection to be Reviewed on Appeal

1. Are Claims 24-46 unpatentable under § 103(a) over *Maya Unlimited 2.0, User's Guide* in view of U.S. Patent No. 5,619,625 to Konno *et al.*?

ARGUMENT

Stated Grounds of Rejection

The rejections outstanding against the Claims are as follows:

1. In the July 28, 2009 Office Action, Claims 24-46 were rejected as unpatentable under 35 U.S.C. § 103(a) over *Maya Unlimited 2.0, User's Guide* © 1998-1999, 59 pages, hereinafter "Maya" in view of U.S. Patent No. 5,619,625 to Konno *et al.*, hereinafter "Konno".

Legal Standards

Relevant legal standards were discussed in the Appeal Brief, and are incorporated by reference.

Reply to Examiner's Answer

Appellant respectfully replies here to the general comments of the Examiner's Answer, and replies below with regard to specific claims. All arguments of the Appeal Brief are incorporated by reference.

The Examiner's Answer appears to attempt to redefine the term "surface condition" as it is used in the specification. The specification as filed describes that

> A method for generating a surface is named based on the surface condition in which the surface was generated. A surface condition refers to the respective numbers of section curves and guide curves that, in combination, may define a surface. In general, a surface condition is expressed in a U x V format, where "U" is the number of section curves and "V" is the number of guide curves. As such, the method used to generate a surface is also expressed in a U x V format. *Specification, page 9, lines 21 – 29.*
>
> ...
>
> A surface is generally referred to by the method that was used to generate the surface. For example, if the surface was generated using two section curves and two guide curves,

> then the surface is referred to as a 2 x 2 surface. Because a 2 x 2 surface is a surface that was generated using a 2 x 2 method, and because the name "2 x 2" of the method is based on the surface condition in which the 2 x 2 surface was generated, a 2 x 2 surface is necessarily under a 2 x 2 surface condition. However, the existence of a 2 x 2 surface condition does not necessarily mean there is a 2 x 2 x 2 surface.
>
> *Specification, page 10, lines 17-27.*

As described, a generated U x V surface necessarily is under a U x V surface condition, but the existence of a U x V surface condition does not mean there is a U x V surface.

First Ground of Rejection

Claims 24-46 were rejected as unpatentable under 35 U.S.C. § 103(a) over Maya in view of Konno.

Claims 24 and 35

These independent claims include similar relevant limitations and may be considered together. For the convenience of the Board, Claim 24 is reproduced below:

> 24. A method for interfacing with multiple surfaces within a computer-aided drawing environment, comprising:
>
> using a computer system, determining that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition, a P x 1 surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero;
>
> using the computer system, determining that a second surface of a drawing comprises a second plurality of curves constituting a first N x M surface condition, a first N x M surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M, wherein N and M are integers greater than one;

using the computer system, converting the P x 1 surface condition of the first surface into a second N x M surface condition to match the N x M surface condition of the second surface, the second N x M surface condition being defined by a number of fifth curves equal to N and a number of sixth curves equal to M, wherein Nand M are integers greater than one;

using the computer system, constructing an N x M surface under the second N x M surface condition; and

modifying the second N x M surface to edit a drawing.

Claim 24 requires "using a computer system, determining that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition, a P x 1 surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero".

These limitations are not taught by any combination of Maya and Konno, as described at length in the Appeal Brief.

As noted in the Appeal Brief, Maya is a *user manual*, and describes how a user might interact with a software application. It does not describe how or that the software application itself manipulates any data – such as any curves, surface conditions, or surfaces – or performs any significant processing of the underlying data,

such as the claimed conversion between surface conditions. Appellant respectfully invites the Board to attempt to identify any teaching at all in Maya with regard to Px1 or NxM surface conditions, forming new surfaces under specific conditions, or converting between surface conditions.

The Examiner's Answer responds that "one of ordinary skill in the art of drafting drawing would reasonable understand that the Maya software is manipulating the NURBS surfaces, curves and surface conditions during the surface generation and editing processes described in the user manual." The Answer is incorrect.

Certainly Maya deals with NURBS surfaces – Maya indicates that "NURBS surfaces are created by default". Maya certainly manipulates data. Nothing, however, teaches, suggests, or even fairly implies *how* the surfaces and curves are internally manipulated or represented in the system, and nothing at all, anywhere, discusses surface conditions as used in the present application. As these claims are specific to determining and converting surface conditions, it is clear that the cited art provides no basis at all for the rejection.

Nothing in any of these cited portions, nor any other part of the cited art, teaches or suggests by using a computer system, determining that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition, a P x 1 surface condition being defined by a number of first curves equal to P and only one

second curve, wherein P is an integer greater than zero, as required by claim 24. Claim 35 specifically requires a software program stored on a computer readable medium and operable, when executed on a processor, to determine that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition.

The Examiner's Answer argues that "any method of defining a surface in a U, V direction is sufficient to disclose such limitations." The Examiner's Answer argues that "defining a surface by a number of curves in the U x V coordinates is equivalent to determining the surface condition of the surface being defined." The Answer is incorrect, as the specification clearly describes that a surface condition is expressed in a U x V format, where "U" is the number of section curves and "V" is the number of guide curves. *Specification, page 9, lines 25-27.* The Examiner attempts to eliminate the "surface condition" limitation altogether – because *Maya does not teach or suggest anything related to surface conditions at all.*

Except for one figure under "To add additional curves to a lofted surface", none of the figures cited by the Examiner show a surface at all, and there can be no teaching that any surface is determined to comprise any curves constituting any surface condition. Certainly, nothing in Maya describes at all if any surface in the system is defined by any specific surface condition as that term is defined by the claim. The Examiner merely refers to various of Maya's figures and assumes that some curves

may be used to define some (unseen) surfaces, but does not show any teaching in Maya that any surface comprise any curves that constitute a specific surface condition.

The Examiner's Answer even cites the specification description of a surface condition – and immediately mischaracterizes it. On page 22, the Examiner's Answer clearly acknowledges that the surface condition refers to the respective numbers of *section curves* and *guide curves*, then completely ignores this by arguing that Maya meets the limitation by being "a drawing application that defines surfaces in a U x V format wherein the user may determine the number of curves in U and V directions that define the NURBS surfaces from which objects may be built." The Answer still does not and cannot show any teaching in Maya at all of any surface conditions, section curves, or guide curves, and the Answer does not and cannot show at all how Maya's system manipulates or manages any data description of any surfaces.

The Examiner's Answer again relies on numerous unsupported statements including the phrase "it is understood". This is not supported in the reference, nor are the other statements throughout the rejections that are prefaced with "it is understood'. These "understandings" are not common knowledge, nor supported by any evidence in the record. "It is understood" appears to refer to the Examiner's personal view as of 2009, and has nothing at all to do with the teachings of the references or what was known by those of skill in the art at the time of filing. This is not proper support for

any rejection. All such "it is understood" statements are traversed as not meeting any evidentiary requirement for a proper rejection of claims.

The Examiner's Answer responds that the "it is understood" comments are intended "to indicate what one of ordinary skill in the art would reasonably conclude based on the disclosure of the cited references and based on applicant's own disclosure." *Examiner's Answer, pages 24-26.* Appellant respectfully notes that the Examiner's statements of what "is understood" are not factually supported in, nor reasonably implied by, any teaching of the cited references. Moreover, the Examiner's lengthy protestations only further illustrate that these are not "understandings" that arise from the art at all. The Examiner's Answer, and the final rejections themselves, apply a tortuous logic to first impute to the references teachings not actually found therein, then warp the language of the specification and claims to something completely different, next argue that the baseless inferences are equivalent to the mischaracterized language, and finally dismiss any remaining limitations as "understood".

The Examiner also appears to indicate that she is actually attempting to use the teachings of the instant application as part of a prior-art rejection; this is improper unless the Applicant has himself described some teaching in the specification as "prior art", and Applicant has not done so.

The Examiner's Answer also mischaracterizes the "Background of the Invention" section of the instant application. For example, on page 22-23, the Examiner's answer states that "Appellant discloses in the background section of the specification that the method by which the surface is generated is defined by the number of curves in the U and the V direction." The "background" actually describes that "the number of curves that define a surface identifies the method by which the surface is generated". *Specification, page 2, lines 15-17.* A mere "number of curves in the U and the V direction" don't define the method by which a surface is generated, rather, the number of curves that define the surface identify the generation method.

Similarly, on page 26, the Examiner's Answer refers to "surfaces generates using conventional drawing methods such as the P x 1 and N x M method indicated in Appellants background information". There are no N x M methods discussed in the background of the instant application.

As described at length in the Appeal Brief, the Examiner has made no showing at all that any surface is determined to comprise specific curves or surface conditions. The portions and figures indicated by the Examiner primarily concern adding curves to a wireframe (perhaps so a later surface could be generated), but not examining the surface conditions that define a given surface. The Examiner's Answer does not answer this point at all, or show any surface from which a surface condition is

determined. The Examiner's Answer appears to argue that Maya shows a bunch of curves, and if there are sufficient curves to determine a surface condition even absent any surface, then that must be good enough. That is not the claim limitation – the plain language of the claims clearly requires a first surface of a drawing and a second surface of a drawing, and determining the surface condition of each. Maya simply has nothing like this.

Others of the arguments in the Examiner's Answer are similarly based on linguistic manipulation, and not any teachings of the cited reference.

Claim 24 also requires, using the computer system, *converting* the P x 1 surface condition of the first surface into a second N x M surface condition to match the N x M surface condition of the second surface. This is not taught at all in any cited reference, since these surface conditions at all.

The Examiner's Answer repeats the completely baseless statement that "Page 34, Adding curves to Lofted surfaces; Page 43, Using the Birail 1 Tool, i.e. curves are added adjacent to an NxM lofted surface such that a Px1 surface condition is identified and then an NxM surface is generated adjacent to the existing NxM surface…." *July 28, 2009 Office Action, page 4.*

This is completely unsupported in the cited references -- no surfaces in Maya are taught or suggested to be maintained by the system as surfaces defined by NxM

surface conditions, no surfaces are taught or suggested to be maintained by the system as surfaces defined by Px1 surface conditions, and there is absolutely no teaching or suggestion that any Px1 surface conditions are converted to NxM surface conditions, as claimed.

The Examiner's Answer admits that "Maya Unlimited 2.0 does not specifically teach wherein converting the Px1 surface condition of the first surface into a second NxM surface condition, wherein the second NxM surface condition is converted to match the NxM surface condition of the second surface as claimed." *Examiner's Answer, page 7.* Even given such an admission, the Examiner's Answer contradicts itself, such as stating that "Maya 2.0 teaching wherein surfaces are generating using a sweep of a first curve along an intersecting curve such that a Px1 surface condition is converted to an NxM surface condition". *Examiner's Answer, page 37.* Maya doesn't teach any such conversion, and the Examiner admits as much, but still imputes such a teaching to Maya in other portions of the rejection.

The Examiner instead relies on Konno, arguing that Konno indicates that a first NxM surface generated adjacent to a second NxM surface would have a NxM surface condition to match the second NxM surface condition of the second surface in order to ensure continuity between the adjacent surfaces.

As described in the Appeal Brief, Konno discusses surface-matching techniques, but does not at any time teach or suggest the surface conditions as defined by the instant claims. Konno does not consider at all different surfaces with different surface conditions. Konno certainly does not convert between one surface condition, as defined by the claims, into another surface condition. *There simply is no relevant teaching.*

Claim 24 also requires, using the computer system, ***constructing an N x M surface under the second N x M surface condition.*** The Examiner does not specifically address this limitation at all, not in the final Office Action, not in the Advisory Action, and not in the Examiner's Answer. It is clear that nothing in the cited references teaches or suggests constructing any surface under any specific surface condition, and certainly not constructing on under an NxM surface condition that is converted from a Px1 surface condition.

Claim 24 also requires modifying the second N x M surface to edit a drawing. The cited references allow a drawing to be edited, but nothing in any combination of them teaches editing an NxM surface constructed under an NxM surface condition that was converted from a Px1 surface condition.

These rejections of claims 24 and 35 should be reversed, as should the rejections of dependent claims 25-29 and 36-40.

Claims 25 and 36

These claims include similar limitations, and may be considered together. Claim 25 requires that converting the P x 1 surface condition of the first surface into the second N x M surface condition further comprises generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the P x 1 surface condition.

The arguments of the respective parent claims apply here as well, and are hereby incorporated by reference.

As described above with regard to the independent claims, nothing in any combination of the cited references teaches or suggests the claimed NxM or Px1 surface conditions at all. They certainly don't teach or suggest converting the Px1 surface condition into the NxM surface condition, nor that it should be compatible with a specific curve that defines the Px1 surface condition.

The Examiner's Answer relies on bootstrapping on a teaching that the Examiner both imputes to and admits is missing from Maya. Again, the Examiner's Answer argues for this claim that Maya teaches converting a Px1 surface condition to an NxM surface condition, although Maya doesn't discuss surface conditions at all, either Px1

or NxM, and doesn't discuss any conversion between surface conditions, and seldom shows a surface at all.

The Examiner refers again to portions of Maya and Konno discussed above, but it is clear that they include no teaching, suggestion, or implication regarding the claimed surface conditions.

The rejections of these claims should be reversed.

Claims 26 and 37

These claims include similar limitations, and may be considered together. Claim 26 requires that converting the P x 1 surface condition of the first surface into the second N x M surface condition further comprises replacing the P x 1 surface condition with the second N x M surface condition.

The arguments of the respective parent claims apply here as well, and are hereby incorporated by reference.

As described above with regard to the independent claims, nothing in any combination of the cited references teaches or suggests the claimed NxM or Px1 surface conditions at all. They certainly don't teach or suggest replacing the Px1 surface condition with the NxM surface condition that was converted from it.

The Examiner again attempts to improperly impute teachings to Maya, , but it is clear that none of the references include any teaching, suggestion, or implication regarding the claimed surface conditions. Maya doesn't discuss surface conditions at all, either Px1 or NxM, and doesn't discuss any conversion between surface conditions, and certainly doesn't discuss replacing a surface condition.

The rejections of these claims should be reversed.

Claims 27 and 38

These claims include similar limitations, and may be considered together. Claim 27 requires that converting the P x 1 surface condition of the first surface into the second N x M surface condition further comprises generating an N x M surface condition defined by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

The arguments of the respective parent claims apply here as well, and are hereby incorporated by reference.

As described above with regard to the independent claims, nothing in any combination of the cited references teaches or suggests the claimed NxM or Px1 surface conditions at all. They certainly don't teach or suggest the specific way to

produce the NxM surface condition from the converted Px1 surface condition, as in these claims.

The Examiner's Answer is unable to show a relevant teaching the art.

The rejections of these claims should be reversed.

Claims 28 and 39

These claims include similar limitations, and may be considered together. Claim 28 requires processing the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

The arguments of the respective parent claims apply here as well, and are hereby incorporated by reference.

The Examiner's Answer gives a very lengthy response, but avoids addressing the claim limitations at all.

The rejections of these claims should be reversed.

Claims 29 and 40

These claims include similar limitations, and may be considered together. Claim 29 requires editing the drawing, at least in part, by modifying additional surfaces having the first N x M surface condition of the second surface.

The arguments of the respective parent claims apply here as well, and are hereby incorporated by reference.

The Examiner's Answer appears to be that Maya and Konno can edit surfaces, so once there is are additional surfaces as claimed, these systems could edit it. However, since it is clear that no combination of the cited references teach or suggest producing the surfaces as claimed, there is also no editing them.

The rejections of these claims should be reversed.

Claim 30

The arguments made above with regard to the claims 24 and 35 are incorporated by reference.

Claim 30 requires "using a computing system, determining that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition, a P x 1 surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than one".

The majority of the Examiner's Answer is a repetition of baseless arguments and characterizations already addressed above, and the replies above are incorporated by reference.

Claim 30 also requires, *in response to determining that the plurality of curves constitute a P x 1 surface condition* and using the computing system, converting the P x 1 surface condition into an N x M surface condition by generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the P x 1 surface condition, the N x M surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M, wherein N and M are integers greater than one, wherein each of the third and fourth curves are of the same mathematical degree as the first and second curves to be compatible with the first and second curves.

First, as the prior "determining" step does not take place in the references, the references cannot teach that this step is performed *in response to* it.

The Examiner's Answer includes a lengthy argument to this very point, but does not at all address the "in response to" limitation.

These rejections of claim 30 should be reversed, as should the rejections of dependent claims 31-34.

Claim 31

Claim 31 requires that converting the P x 1 surface condition into the N x M surface condition further comprises replacing the P x 1 surface condition with the N x M surface condition.

The arguments of the parent claim apply here as well, and are hereby incorporated by reference. These limitations, and Examiner's Answer, are similar to those addressed above for claim 26, and the arguments above with respect to those claims are incorporated by reference.

The rejections of these claims should be reversed.

Claim 32

Claim 32 requires that converting the P x 1 surface condition into the N x M surface condition further comprises generating an N x M surface condition defined by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

The arguments of the parent claim apply here as well, and are hereby incorporated by reference. These limitations, and Examiner's Answer, are similar to

those addressed above for claim 27, and the arguments above with respect to that claim are incorporated by reference.

The rejection of this claim should be reversed.

Claim 33

Claim 33 requires processing the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

The arguments of the parent claim apply here as well, and are hereby incorporated by reference. These limitations, and Examiner's Answer, are similar to those addressed above for claim 28, and the arguments above with respect to those claims are incorporated by reference.

The rejection of this claim should be reversed.

Claim 34

Claim 34 requires editing the drawing, at least in part, by modifying additional surfaces having the first N x M surface condition.

The arguments of the parent claim apply here as well, and are hereby incorporated by reference. These limitations, and Examiner's Answer, are similar to

those addressed above for claim 29, and the arguments above with respect to those claims are incorporated by reference.

The rejections of these claims should be reversed.

Claim 41

The arguments and reply to the Examiner's Answer made above with regard to claims 24 and 35 are incorporated by reference.

These rejections of claim 41 should be reversed, as should the rejections of dependent claims 42-46.

Claim 42

Claim 42 requires that wherein the software program is further operable to convert the P x 1 surface condition of the first surface into the N x M surface condition by generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the P x 1 surface condition.

The arguments of the parent claim apply here as well, and are hereby incorporated by reference. These limitations, and Examiner's Answer, are similar to

those addressed above for claim 25 and 36, and the arguments above with respect to those claims are incorporated by reference.

The rejections of these claims should be reversed.

Claim 43

Claim 43 requires that the software program is further operable to convert the P x 1 surface condition of the first surface into the N x M surface condition by generating an N x M surface condition to replace the P x 1 surface condition.

The arguments of the parent claim apply here as well, and are hereby incorporated by reference. These limitations, and Examiner's Answer, are similar to those addressed above for claim 26 and 37, and the arguments above with respect to those claims are incorporated by reference.

The rejections of these claims should be reversed.

Claim 44

Claim 44 requires that the software program is further operable to convert the P x 1 surface condition of the first surface into the N x M surface condition by generating an N x M surface condition defined by the third and fourth curves such that the third

and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

The arguments of the parent claim apply here as well, and are hereby incorporated by reference. These limitations, and Examiner's Answer, are similar to those addressed above for claim 27, and the arguments above with respect to that claim are incorporated by reference.

The rejections of these claims should be reversed.

Claims 45

Claim 45 requires processing the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

The arguments of the parent claim apply here as well, and are hereby incorporated by reference. These limitations, and Examiner's Answer, are similar to those addressed above for claim 28 and 36, and the arguments above with respect to those claims are incorporated by reference.

The rejections of these claims should be reversed.

Claim 46

Claim 46 requires editing the drawing, at least in part, by modifying additional surfaces having the first N x M surface condition.

The arguments of the parent claim apply here as well, and are hereby incorporated by reference. These limitations, and Examiner's Answer, are similar to those addressed above for claim 29 and 40, and the arguments above with respect to those claims are incorporated by reference.

The rejections of these claims should be reversed.

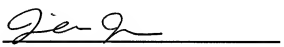
Grouping of Claims

The claims on appeal do not stand or fall together, as may be seen from the arguments set forth below. Each claim or group of claims that has been argued separately under a separate subheading should be considered separately. While the appellant recognizes that a formal statement regarding the grouping of claims is no longer required, each claim should be considered separately; or at the very least each claim which is argued separately in the preceding sections of this brief should be considered separately.

REQUESTED RELIEF

The Board is respectfully requested to reverse the outstanding rejections and return this application to the Examiner for allowance.

Respectfully submitted,



Michael J. Wallace, Jr.
USPTO Reg. No. 44,486

ATTORNEY FOR APPELLANT

SIEMENS CORPORATION
Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830
Phone: 770.751.2351
DATE: 13 April 2010

APPENDIX A -

Claims Appendix

1-23. (Cancelled)

24. (Previously Presented) A method for interfacing with multiple surfaces within a computer-aided drawing environment, comprising:

using a computer system, determining that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition, a P x 1 surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero;

using the computer system, determining that a second surface of a drawing comprises a second plurality of curves constituting a first N x M surface condition, a first N x M surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M, wherein N and M are integers greater than one;

using the computer system, converting the P x 1 surface condition of the first surface into a second N x M surface condition to match the N x M surface

condition of the second surface, the second N x M surface condition being defined by a number of fifth curves equal to N and a number of sixth curves equal to M, wherein Nand M are integers greater than one;

using the computer system, constructing an N x M surface under the second N x M surface condition; and

modifying the second N x M surface to edit a drawing.

25. (Previously Presented) The method of Claim 24, wherein converting the P x 1 surface condition of the first surface into the second N x M surface condition further comprises generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the P x 1 surface condition.

26. (Previously Presented) The method of Claim 24, wherein converting the P x 1 surface condition of the first surface into the second N x M surface condition further comprises replacing the P x 1 surface condition with the second N x M surface condition.

27. (Previously Presented) The method of Claim 24, wherein converting the P x 1 surface condition of the first surface into the second N x M surface condition further comprises generating an N x M surface condition defined by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

28. (Previously Presented) The method of Claim 24, and further comprising processing the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

29. (Previously Presented) The method of Claim 24, and further comprising editing the drawing, at least in part, by modifying additional surfaces having the first N x M surface condition of the second surface.

30. (Previously Presented) A method for interfacing with a surface within a computer-aided drawing environment, comprising:

using a computing system, determining that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition, a P x 1 surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than one;

in response to determining that the plurality of curves constitute a P x 1 surface condition and using the computing system, converting the P x 1 surface condition into an N x M surface condition by generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the P x 1 surface condition, the N x M surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M, wherein N and M are integers greater than one, wherein each of the third and fourth curves are of the same mathematical degree as the first and second curves to be compatible with the first and second curves;

using the computing system, constructing an N x M surface under the N x M surface condition; and

modifying the N x M surface to edit a drawing.

31. (Previously Presented) The method of Claim 30, wherein converting the P x 1 surface condition into the N x M surface condition further comprises replacing the P x 1 surface condition with the N x M surface condition.

32. (Previously Presented) The method of Claim 30, wherein converting the P x 1 surface condition into the N x M surface condition further comprises generating an N x M surface condition defined by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

33. (Previously Presented) The method of Claim 30, further comprising processing the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

34. (Previously Presented) The method of Claim 30, further comprising editing the drawing, at least in part, by modifying additional surfaces having the first N x M surface condition.

35. (Previously Presented) An apparatus for interfacing with a surface within a computer-aided drawing environment, comprising:

a software program stored on a computer readable medium and operable, when executed on a processor, to:

determine that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition, the P x 1 surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero;

determine that a second surface of the drawing comprises a second plurality of curves constituting a first N x M surface condition, a first N x M surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M, wherein N and M are integers greater than one;

convert the P x 1 surface condition of the first surface into a second N x M surface condition to match the N x M surface condition of the second surface, the second N x M surface condition being defined by a number of fifth curves equal to N and a number of sixth curves equal to M, wherein N and M are integers greater than one;

generate an N x M surface under the second N x M surface condition;

and

modify the generated N x M surface.

36. (Previously Presented) The apparatus of Claim 35, wherein the software program is further operable to convert the P x 1 surface condition of the first surface into the second N x M surface condition by generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the P x 1 surface condition.

37. (Previously Presented) The apparatus of Claim 35, wherein the software program is further operable to replace the P x 1 surface condition with the second N x M surface condition.

38. (Previously Presented) The apparatus of Claim 35, wherein the software program is further operable to convert the P x 1 surface condition of the first surface into the second N x M surface condition by generating an N x M surface condition defined

by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

39. (Previously Presented) The apparatus of Claim 35, wherein the software program is further operable to process the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

40. (Previously Presented) The apparatus of Claim 35, wherein the software program is further operable to modify additional surfaces having the first N x M surface condition.

41. (Previously Presented) A system for interfacing with a surface within a computer-aided drawing environment, comprising:

a computer system having a display unit and an input device;

a computer readable medium coupled to the computer system, the computer readable medium comprising a software program operable to:

determine that a first surface of a drawing comprises a first plurality of curves constituting a P x 1 surface condition, the P x 1 surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than one;

convert the P x 1 surface condition of the first surface into a N x M surface condition, the N x M surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M, wherein N and M are integers greater than one, the third and fourth curves mathematically filling the space of the surface plane defined by the first curves and the only one second curve;

construct an N x M surface under the N x M surface condition; and

enable edits to the drawing, at least in part, by enabling modifications to the constructed N x M surface.

42. (Previously Presented) The system of Claim 41, wherein the software program is further operable to convert the P x 1 surface condition of the first surface into the N x M surface condition by generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the P x 1 surface condition.

43. (Previously Presented) The system of Claim 41, wherein the software program is further operable to convert the P x 1 surface condition of the first surface into the N x M surface condition by generating an N x M surface condition to replace the P x 1 surface condition.

44. (Previously Presented) The system of Claim 41, wherein the software program is further operable to convert the P x 1 surface condition of the first surface into the N x M surface condition by generating an N x M surface condition defined by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

45. (Previously Presented) The system of Claim 41, wherein the software program is further operable to process the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

46. (Previously Presented) The system of Claim 41, wherein the software program is further operable to modify additional surfaces having the first N x M surface condition.

APPENDIX B -

Copy of Formal Drawings

APPENDIX C -
Evidence Appendix

Not Applicable -- No other evidence was entered.

APPENDIX D -
Related Proceedings Appendix

Not Applicable -- To the best knowledge and belief of the undersigned attorney, there are none.